

- An Instrument for Detecting Nuclear Explosions from Low Levels of Radioactive Xenon - Latest Developments

Today, 16 stations within the IMS network of CTBTO have SAUNA Systems installed for noble gas capability. The activity measurement of the four xenon isotopes, ^{133}Xe , $^{131\text{m}}\text{Xe}$, $^{133\text{m}}\text{Xe}$, and ^{135}Xe is performed using the very sensitive beta gamma coincidence technique allowing high sensitivity also for the meta-stable states resulting in MDC:s of 0.3, 0.3, 0.3 and 0.7 mBq/m³ respectively. In the SAUNA Systems product portfolio there are systems for; continuous monitoring, in-field sampling, and reanalysis of archived samples. We are now upgrading SAUNA systems in the network with the latest developments; new digital detector electronics, an in house developed high voltage supply, new data acquisition software, new safety solutions, and a new sample archive. We are also in final testing of new memory free beta cells awaiting an upcoming release in the near future. The new detector electronics with new HV-supply have several advantages, better stability, better temperature dependence and an easier set up procedure. A new data acquisition software has made the system more user friendly and flexible. After release of the memory free beta cells the SAUNA detector system has been greatly improved and offers new possibilities.

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Track Classification: Theme 3: Advances in Sensors, Networks and Processing